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Measuring Coherent Neutrino Scattering with Ge

Coherent elastic neutrino-nucleus scattering (CEvNS) is a standard model process that has been predicted for over 40 years; however, despite the large cross section of this interaction, CEvNS has been measured for the first time only very recently by the COHERENT collaboration. Since first measuring CEvNS in a CsI detector in 2017, the COHERENT collaboration has been working to implement several other detectors with a wide range of atomic masses. Recently, the Collaboration began construction of a 16-kg array of low-noise, low-threshold germanium detectors for a precision measurement of the cross section with a target of intermediate N and reduced systematic uncertainties compared to other targets. This array is scheduled for deployment at the Spallation Neutron Source (SNS) in early 2021. Details of the design, simulated backgrounds, and physics reach will be presented.

Mini-abstract

COHERENT's 16-kg Ge detector array will measure CEvNS at the Spallation Neutron Source

Experiment/Collaboration

COHERENT

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